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Report of the Special Rapporteur on the issue of human rights obligations relating to the enjoyment of a safe, clean, healthy and sustainable environment

Note by the Secretariat

The Secretariat has the honour to transmit to the Human Rights Council the report of the Special Rapporteur on the issue of human rights obligations relating to the enjoyment of a safe, clean, healthy and sustainable environment, John H. Knox, on the human rights obligations relating to the conservation and sustainable use of biological diversity. In his report, he describes the importance of ecosystem services and biodiversity for the full enjoyment of human rights and outlines the application of human rights obligations to biodiversity-related actions.

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Contents

		Page
I.	Introduction	3
II.	The dependence of human rights on biodiversity	3
	A. Human rights and ecosystem services	4
	B. Human rights and biodiversity	4
III.	Human rights obligations relating to the conservation and sustainable use of biodiversity	10
	A. Procedural obligations	10
	B. Substantive obligations	12
	C. Obligations in relation to people in vulnerable situations	16
IV.	Conclusions and recommendations	21

I. Introduction

1. In its resolution 28/11, the Human Rights Council encouraged the Special Rapporteur to promote the realization of human rights obligations relating to the environment, continuing to give particular emphasis to practical solutions. In 2015, the Special Rapporteur presented a report to the Council (A/HRC/31/53) recommending methods of implementing the obligations, and he followed up on many of the recommendations in 2016.

2. For example, in partnership with the United Nations Environment Programme, he began a series of regional judicial workshops on rights-based approaches to environmental issues, with the first held in South Africa in April 2016 and the second planned to be held in Brazil in 2017. He helped the United Nations Institute for Training and Research to develop an online course entitled "Human rights and environmental protection for sustainable development". He also worked with the Universal Rights Group and other partners to prepare a web portal, environment-rights.org, with resources for environmental human rights defenders. In 2017, the final full year of his mandate, the Special Rapporteur intends to implement another recommendation by preparing practical guidelines, or guiding principles, on the human rights obligations relating to the environment. To inform the preparation of the guidelines, he will engage in consultations with Governments and other stakeholders.

3. In its resolution 28/11, the Human Rights Council also encouraged the Special Rapporteur to continue to clarify the human rights obligations relating to the environment. In the present report, the Special Rapporteur examines the obligations relating to the conservation and sustainable use of ecosystems and biological diversity (biodiversity). In preparation for the report, he held an expert meeting and a public consultation from 20 to 22 September 2016. He also attended the 2016 World Conservation Congress and the thirteenth meeting of the Conference of the Parties to the Convention on Biological Diversity. He sent a questionnaire to States and other interested stakeholders, which elicited over 60 responses, and he examined statements and reports by international organizations, human rights mechanisms, scholars and other sources.

4. Section II explains that biodiversity is necessary for the enjoyment of a wide range of human rights and that the loss of biodiversity threatens the enjoyment of those rights. Section III outlines the human rights obligations relating to the protection of biodiversity. Section IV concludes with recommendations on the conservation and sustainable use of biodiversity to protect the full enjoyment of human rights.

II. The dependence of human rights on biodiversity

5. The full enjoyment of human rights, including the rights to life, health, food and water, depends on the services provided by ecosystems. The provision of ecosystem services depends on the health and sustainability of ecosystems, which in turn depend on biodiversity. The full enjoyment of human rights thus depends on biodiversity, and the degradation and loss of biodiversity undermine the ability of human beings to enjoy their human rights.[1]

[1] The present report focuses on the value of biodiversity to human beings, but the Special Rapporteur notes that the components of biodiversity also have intrinsic value that may not be captured by a human rights perspective.

A. Human rights and ecosystem services

6. The Millennium Ecosystem Assessment, a comprehensive review of the relationship between ecosystems and human well-being, states: "Everyone in the world depends completely on Earth's ecosystems and the services they provide, such as food, water, disease management, climate regulation, spiritual fulfilment, and aesthetic enjoyment."[2] Ecosystem services include provisioning services such as food, water, timber and fiber, which are necessary for basic material needs, including nutrition, shelter and clothing. Regulating services such as purification of water and protection against erosion support clean water and human health. Ecosystems also provide vital cultural services to the many people around the world whose religious and spiritual values are rooted in nature.[3]

7. International law recognizes that everyone has human rights to what the Assessment describes as the components of human well-being. The relationship between ecosystems and human rights is mediated by social institutions, culture and technology in countless ways. But it is obvious that without the services provided by healthy ecosystems, the ability to enjoy many rights, including the rights to life, health, food, water and participation in cultural life, would be severely compromised or impossible. As the Special Rapporteur has described in previous reports (A/HRC/22/43 and A/HRC/25/53), the Human Rights Council and other human rights bodies have recognized that the full enjoyment of human rights depends on a healthy, sustainable environment. Although they have not typically used the phrase "ecosystem services", such services are what a healthy environment provides.

8. Human rights law does not require that ecosystems remain untouched by human hands. Economic and social development depends on the use of ecosystems, including, in appropriate cases, the conversion of natural ecosystems such as old-growth forests into human-managed ecosystems such as pastures and cropland. To support the continued enjoyment of human rights, however, this development cannot overexploit natural ecosystems and destroy the services on which we depend. Development must be sustainable, and sustainable development requires healthy ecosystems. In Sustainable Development Goal 15, States committed to "protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss" (General Assembly resolution 70/1).[4]

B. Human rights and biodiversity

9. Although the importance of a healthy environment for the enjoyment of human rights is widely recognized, the relationship between human rights and biodiversity remains less well understood. The Convention on Biological Diversity (art. 2) defines biodiversity as "the variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems". Biodiversity

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[2] Millennium Ecosystem Assessment, *Ecosystems and Human Well-being: Synthesis* (Island Press, Washington, D.C., 2005), p. 1. The report defines the term "ecosystem" as "a dynamic complex of plant, animal, and microorganism communities and the nonliving environment interacting as a functional unit". Ibid., p. v.

[3] A fourth category, supporting services, which includes soil formation, photosynthesis and nutrient cycling, underlies the other three types of ecosystem services. See *Ecosystems and Human Well-being: Synthesis*, p. 40.

[4] Targets under Goals 2, 6 and 14 address the protection of agricultural, water-related, and marine and coastal ecosystems.

thus includes not only the millions of different species on Earth;[5] "it also consists of the specific genetic variations and traits within species (such as different crop varieties), and the assemblage of these species within ecosystems that characterize agricultural and other landscapes such as forests, wetlands, grasslands, deserts, lakes and rivers".[6]

10. In the words of the Millennium Ecosystem Assessment, "biodiversity is the foundation of ecosystem services to which human well-being is intimately linked".[7] Biodiversity supports ecosystem services and the human rights that depend upon them in many ways. In general, biodiversity contributes to the productivity and stability of ecosystem processes.[8] More diverse ecosystems are more resilient to disasters and to long-term threats such as climate change.[9] More specifically, biodiversity contributes to particular ecosystem services that directly support the full enjoyment of human rights. The present report highlights some of those contributions with respect to: the rights to life and health; the right to an adequate standard of living; and the right to non-discrimination in the enjoyment of rights.

1. Rights to life and health

11. The Universal Declaration of Human Rights (art. 3) and the International Covenant on Civil and Political Rights (art. 6) recognize the right to life. The Human Rights Committee has emphasized that the right to life should not be interpreted narrowly, and that the protection of the right requires States to adopt positive measures such as measures to reduce infant mortality and increase life expectancy.[10] The Constitution of the World Health Organization and article 12 of the International Covenant on Economic, Social and Cultural Rights recognize the right to the highest attainable standard of physical and mental health. The Committee on Economic, Social and Cultural Rights has stated that the right to health "extends to the underlying determinants of health, such as food and nutrition, housing, access to safe and potable water and adequate sanitation, safe and healthy working conditions, and a healthy environment".[11]

12. Of the many connections between biodiversity and healthy human life, the present report focuses on four, relating to medicinal drugs, microbial diversity, infectious diseases and mental health.[12]

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[5] Although estimates of species vary widely, a recent estimate is that there is about 7.7 million species of animals and about 8.7 million eukaryotic species in all, of which only about 1.2 million have been catalogued. Camilo Mora and others, "How many species are there on Earth and in the ocean?", *PLOS Biology*, vol. 9, No. 8 (2011), p. 1.

[6] World Health Organization (WHO) and Secretariat of the Convention on Biological Diversity, *Connecting Global Priorities: Biodiversity and Human Health — a State of Knowledge Review* (Geneva, 2015), p. 28.

[7] Millennium Ecosystem Assessment, *Ecosystems and Human Well-being: Biodiversity Synthesis* (World Resources Institute, Washington, D.C., 2005), p. 18.

[8] *Connecting Global Priorities*, p. 34; Bradley J. Cardinale and others, "Biodiversity loss and its impact on humanity", *Nature*, vol. 486, (June 2012), p. 59.

[9] *Connecting Global Priorities*, p. 18.

[10] General comment No. 6 (1982) on the right to life, para. 5.

[11] General comment No. 14 (2000) on the right to the highest attainable standard of health, para. 4.

[12] A particularly useful resource is the 2015 report of WHO and the Secretariat of the Convention on Biological Diversity cited above (see footnote 6), which contains a summary of the state of knowledge on biodiversity and human health and which is available at https://www.cbd.int/health/stateofknowledge. See also Eric Chivian and Aaron Bernstein, eds., *Sustaining Life: How Human Health Depends on Biodiversity* (Oxford University Press, 2008).

Medicinal drugs

13. One of the best-known connections between biodiversity and health is the derivation of medicinal drugs from natural products.[13] Humans have relied on biodiversity as a source of medicine throughout our history. The oldest known natural mummy, found in the Italian Alps in 1991 after being frozen for more than 5,000 years, carried *Piptoporus betulinus*, a birch fungus that reduces inflammation.[14] Famous recent examples include: *Cinchona officinalis*, a South American tree whose bark produces quinine, a treatment for malaria; *Catharanthus roseus*, the Madagascar rosy periwinkle, first used as a traditional medicine and then as the basis for successful treatments of childhood leukemia and Hodgkin's lymphoma; *Penicillium citrinum*, a fungus whose derivation reduces cholesterol synthesis; and *Digitalis purpurea*, the purple foxglove, used to treat heart disease. More than half of the 1,355 drugs approved by the United States Food and Drug Administration between 1981 and 2010 had natural origins.[15] Our debt to nature is particularly great with respect to antibiotics, which have saved millions of lives: 10 of the 14 major classes of antibiotics are derived from microorganisms.[16]

14. Biodiversity is an irreplaceable resource for new medicines, but we are rapidly destroying the resource before we have discovered all that it has to offer. Only a fraction of the hundreds of thousands of plant species have been studied for their medicinal potential, and other living resources, including the marine and the microbial, remain almost completely unexamined. Species are disappearing before we understand what we have lost, but scientists know of tantalizing missed opportunities. For example, two species of gastric brooding frogs indigenous to Australia had unique reproductive physiology that might have provided insights into how to relieve peptic ulcers. Their potential was lost forever when the species became extinct in the 1980s. Even plants known to be valuable are often at risk. As many as 40 per cent of the approximately 60,000 plant species thought to be used for medicinal purposes are endangered, including plants long important in traditional medicine such as the African cherry (*Prunus Africana*) and the Himalayan yew (*Taxus wallichianaî*).[17]

Microbial diversity

15. Another way that biodiversity supports human health is even more pervasive but less widely recognized. Studies indicate that the development of normal immune responses, especially to allergens, requires exposure to diverse natural habitats.[18] Each of us carries microorganisms that interact with the biodiversity in the environment in ways that are critical for "the induction and maintenance of immunoregulatory circuits and tolerance".[19] Environmental microorganisms were "previously ubiquitous and abundantly present e.g. in our food, drinking water and milk", but as more people live in urban settings and as global biodiversity decreases, these interactions are decreasing as well.[20] The reduced diversity of

[13] *Connecting Global Priorities*, p. 11. See, generally, Enrique Ravina, *The Evolution of Drug Discovery: From Traditional Medicines to Modern Drugs* (Wiley, 2011), pp. 107-312.

[14] *Connecting Global Priorities*, p. 165.

[15] Ibid.

[16] Ibid., p. 11.

[17] Ibid., pp. 11 and 165.

[18] Paul A. Sandifer and others, "Exploring connections among nature, biodiversity, ecosystem services, and human health and well-being: opportunities to enhance health and biodiversity conservation", *Ecosystem Services*, vol. 12 (April 2015), pp. 1 and 7.

[19] Tari Haahtela and others, "The biodiversity hypothesis and allergic disease: World Allergy Organization position statement", *World Allergy Organization Journal*, vol. 6, No. 3 (January 2013), pp. 1 and 12.

[20] Ibid.

environmental microorganisms is "a part of the more global problem of disappearing natural environments and general loss of biodiversity. The 'far out biodiversity' (plant and animal life) and the 'close to biodiversity' (micro-biotas) are interconnected and shrinking".[21] The loss of this microbial diversity appears to cause problems of immunoregulation, leading human immune systems to attack the wrong targets, which in turn causes autoimmune diseases, allergic disorders and other non-communicable inflammatory diseases to become more prevalent in all parts of the world.[22]

Infectious diseases

16. For some zoonotic diseases,[23] the loss of biodiversity has been linked to increased prevalence in humans. "For instance, hantavirus prevalence is thought to increase when mammal diversity decreases; the rise of West Nile virus is correlated with decreases in non-passerine bird richness; landscape prevalence of *Bartonella* increases when large wildlife are removed; and habitat fragmentation increases risk of Lyme disease."[24] In such cases, a high diversity of pathogen hosts appears to dilute the transmission paths of pathogens to humans; as diversity decreases, the transmission rates increase.[25]

Mental health

17. It is increasingly clear that exposure to nature has beneficial effects on mental health. A comprehensive review of studies concluded that "experiencing nature can have positive effects on mental/psychological health, healing, heart rate, concentration, levels of stress, blood pressure, behaviour, and other health factors. For example, viewing nature, even through a window, improves recovery from surgery."[26] Most of the cited studies examine exposure to green space or natural surroundings without controlling for diversity. However, "there is mounting evidence that not just exposure to nature, but contact with diverse natural habitats and many different species, has important positive impacts for human health".[27]

2. Right to an adequate standard of living

18. The Universal Declaration of Human Rights (art. 25) and the International Covenant on Economic, Social and Cultural Rights (art. 11) recognize the right to an adequate standard of living. The Committee on Economic, Social and Cultural Rights has explained that the right to an adequate standard of living is intentionally expansive and that the Covenant includes "a number of rights emanating from, and indispensable for, the realization of the right".[28] These rights include the rights to food and housing, to which the Covenant explicitly refers, and the rights to safe and clean water and sanitation, which have been recognized by the General Assembly, in its resolution 64/292, and the Human Rights Council, in its resolution 15/9.

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[21] Ibid. See also Ilkka Hanski, "Environmental biodiversity, human microbiota, and allergy are interrelated", *Proceedings of the National Academy of Sciences*, vol. 109, No. 21 (2012), p. 8334.

[22] *Connecting Global Priorities*, p. 150.

[23] Zoonotic diseases are normally found in animals but can infect humans.

[24] *Connecting Global Priorities*, p. 132.

[25] Aaron Bernstein, "Biological diversity and public health", *Annual Review of Public Health*, vol. 35 (January 2014), pp. 153 and 159.

[26] Paul A. Sandifer and others, "Exploring connections", p. 3.

[27] Ibid., p. 6. See also Richard A. Fuller and others, "Psychological benefits of greenspace increase with biodiversity", *Biology Letters*, vol. 3 (2007) p. 390; *Connecting Global Priorities*, pp. 200-209.

[28] General comment No. 15 (2002) on the right to water, para. 3.

19. The benefits of biodiversity are particularly evident in relation to the right to food. Genetic diversity within species increases the yield of commercial crops,[29] and species richness in freshwater fisheries is associated with greater productivity.[30] (Tree species diversity and richness also increase production of timber, which supports the fulfilment of the right to housing.[31]) Biodiversity is especially crucial to the stability and resilience of food sources. Increasing diversity of fish species is associated with greater stability of fisheries,[32] and "resiliency in agroecosystems to environmental change depends on the innate attributes of crop varieties, which makes preserving crop biodiversity [e.g., through seed banks] a vital part of food security".[33] Access to a diverse variety of local plants helps to protect vulnerable rural communities, in particular, which may rely on them when harvests fail or sudden expenses occur.[34] Climate change will test the resiliency of agriculture and fisheries more and more, and "the increased use of agricultural biodiversity will play an essential part in the adaptation and mitigation actions needed to cope with climate change and ensuring continued sustainable supplies of healthy food, providing adaptive capacity, diverse options to cope with future change and enhanced resilience in food production systems".[35]

20. Food security also depends on the biodiversity of the surrounding environment. "Successfully raising any single crop requires more than its seeds; a multitude of species are necessary, from microbes, insects, worms, and small vertebrates in the soil to a host of species above ground that control pests, fertilize soils, and pollinate flowers. Marked population declines have been observed in organisms vital to agriculture in recent years, and these losses bear directly on food security."[36] For example, biodiversity directly contributes to the effective pollination and seed dispersal of useful plants and increases resistance to agricultural pests and exotic plants.[37] In this respect, the unusually high losses in recent years of colonies of *Apis mellifera* (western honeybees), an important pollinator, have been of particular concern, since pollination is necessary for more than three quarters of the 107 leading global food crops, including many fruits and vegetables that are important sources of micronutrients and vitamins.[38]

21. Biodiversity also helps to support the right of access to clean and safe water. Increased forest areas significantly improve water flow regulation by reducing runoff and providing greater water storage.[39] Diverse animal, plant and algae species help to draw excess nitrogen and phosphorus from aquatic ecosystems.[40] Bivalve molluscs, which filtrate large amounts of water in both marine and freshwater environments, can play a particularly important role in water purification. For example, a freshwater mussel species in South

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[29] See Cardinale and others, "Biodiversity loss and its impact on humanity", p. 62.

[30] P.A. Harrison and others, "Linkages between biodiversity attributes and ecosystem services: a systematic review", *Ecosystem Services*, vol. 9 (September 2014), pp. 191 and 195.

[31] Cardinale and others, "Biodiversity loss and its impact on humanity", p. 62. See also Harrison and others, "Linkages between biodiversity attributes and ecosystem services".

[32] Cardinale and others, "Biodiversity loss and its impact on humanity", p. 62.

[33] Bernstein, "Biological diversity and public health", p. 158.

[34] *Ecosystems and Human Well-being: Biodiversity Synthesis*, p. 30; *Connecting Global Priorities*, pp. 111-112.

[35] *Connecting Global Priorities*, p. 6.

[36] Bernstein, "Biological diversity and public health", p. 158.

[37] *Ecosystems and Human Well-being: Biodiversity Synthesis*, pp. 25 and 29.

[38] Intergovernmental Science-Policy Platform on Biodiversity, "Summary for policymakers of the assessment report on pollinators, pollination and food production" (2016), pp. 8 and 16; *Connecting Global Priorities*, p. 81.

[39] Harrison and others, "Linkages between biodiversity attributes and ecosystem services", p. 195.

[40] *Connecting Global Priorities*, p. 48.

America, *Diplodon chilensis*, has been shown to decrease eutrophication by reducing total phosphorus and controlling phytoplankton densities.[41] Natural filtration services can also clean water of human-made toxic substances. A famous example is *Epischura baikalensis*, a crustacean native to Lake Baikal in the Russian Federation, the largest freshwater lake by volume in the world. Each no bigger than a poppy seed, these copepods keep the water clear by ingesting pollutants as well as food. In the words of a local environmentalist, they are "the heroes of the lake".[42] Of course, there are limits to the ability of ecosystems to clean up after us. By removing persistent organic pollutants from the water, *Epischura* and other species introduce them into the food chain, where they bioaccumulate in larger animals such as fish, seals and, eventually, humans.[43]

3. Non-discrimination and the rights of those most vulnerable to the loss of biodiversity

22. The degradation and loss of biodiversity often result from and reinforce existing patterns of discrimination. Although everyone depends on ecosystem services, some people depend on them more closely than others. For indigenous peoples, forest-dwellers, fisherfolk and others who rely directly on the products of forests, rivers, lakes and oceans for their food, fuel and medicine, environmental harm can and often does have disastrous consequences. This is true not only because of their close relationship to nature, but also because they typically have little economic and political power within their countries, so they cannot easily obtain substitutes for their lost natural resources.[44] Their marginalization means that they have limited or no access to decision-making processes or legal remedies. Their legal rights to the territory and resources on which they depend may not even be recognized by their Governments.

23. In addition to the material consequences of environmental degradation, there are often grave cultural effects. Many religions call on all human beings to be stewards of the riches of the natural world. However, the loss of particular places is felt predominantly by those who associate their sacred rituals and sites with those locations. Food and shelter may be replaced, but the destruction of a sacred grove may cause irreparable harm. For example, when members of the AmaXhosa people in South Africa were asked what would happen if sites sacred to their community were destroyed, they replied "it means that our culture is dead."[45]

24. Cutting down forests for timber and to clear land for agricultural production, building dams to harness rivers for hydroelectric power and opening fisheries to industrial exploitation may well have economic benefits. But even if the economic benefits outweigh the real economic and cultural costs at a macro scale (which they often do not, since the real costs of destroying a forest or a river ecosystem are almost never taken into account),[46] the benefits are recovered disproportionately by those who did not depend directly on the resource and the costs are imposed disproportionately on those who did. As a result, "the loss of biodiversity-dependent ecosystem services is likely to accentuate inequality and marginalization of the most vulnerable sectors of society, by decreasing their access to basic materials for a healthy life and by reducing their freedom of choice and action. Economic development that does not consider effects on these ecosystem services may

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[41] Ibid., citing sources.

[42] Peter Thomson, "Russia's Lake Baikal: preserving a natural treasure", *environment360* (3 June 2008).

[43] Ibid.

[44] *Connecting Global Priorities*, p. 32.

[45] *Ecosystems and Human Well-being: Biodiversity Synthesis*, p. 31.

[46] *Ecosystems and Human Well-being: Synthesis*, pp. 6-11. For studies of the economic value of biodiversity, see the Economics of Ecosystems and Biodiversity initiative, at www.teebweb.org.

decrease the quality of life of these vulnerable populations, even if other segments of society benefit."[47]

25. The loss of biodiversity-dependent ecosystem services also has disproportionate effects on people who are vulnerable for other reasons, including gender, age, disability, poverty or minority status. Much more research is necessary to understand and respond to the ways that access to and management of biodiversity vary according to gender and other characteristics, and the differentiated effects of the loss and degradation of biodiversity. The lack of disaggregated data on biodiversity access, use and control hampers efforts to design and implement measures that appropriately respond to these types of vulnerabilities.[48]

III. Human rights obligations relating to the conservation and sustainable use of biodiversity

26. States have obligations to protect against environmental harm that interferes with the enjoyment of human rights, and the obligations apply to biodiversity as an integral part of the environment. As the Special Rapporteur emphasized last year in relation to climate change, these obligations continue to be studied and clarified, and the present report should not be taken as the final word on their content. In particular, it does not substitute for the more detailed analysis of particular human rights by mandate holders, treaty bodies, regional human rights tribunals or others. Rather, the goals are to provide an overview of this evolving area of the law and a framework for further elaboration.

A. Procedural obligations

27. The procedural human rights obligations of States in relation to the environment include duties: (a) to assess impacts and make environmental information public; (b) to facilitate public participation in environmental decision-making, including by protecting the rights of expression and association; and (c) to provide access to remedies for harm. These obligations have bases in civil and political rights, but they have been clarified and extended in the environmental context on the basis of the entire range of human rights at risk from environmental harm (see A/HRC/25/53, para. 29). They are supported by provisions in international environmental instruments, including principle 10 of the 1992 Rio Declaration on Environment and Development.

28. Each of these obligations applies to measures that affect biodiversity in ways that threaten the full enjoyment of the human rights that depend on its components. For example, before a State grants a concession for exploitation of a forest, authorizes a dam on a river or takes other steps that allow the degradation or loss of biodiversity, it should assess the environmental and social impacts of the proposal, provide information about its possible effects, facilitate informed public participation in the decision-making process, including by protecting the rights of freedom of expression and association, and provide access to effective legal remedies for those who claim that their rights have been violated.

[47] Sandra Diaz and others, "Biodiversity loss threatens human well-being", *PLOS Biology*, vol. 4, No. 8 (August 2006), pp. 1300 and 1302.

[48] *Connecting Global Priorities*, pp. 32-33.

29. Some conservation agreements require or encourage States to conduct assessments, provide access to information and facilitate public participation.[49] In addition, many States have made important strides to implement access rights through their national legislation, including with respect to measures that would affect ecosystems and biodiversity. Many of the responses to the questionnaire sent by the Special Rapporteur provide examples of procedural safeguards and innovations at the national level.[50]

30. At the international level, States have developed exemplary practices with respect to the right to information, including regular assessments of progress towards the goals of the Convention on Biological Diversity.[51] The most important recent development relating to the right to information may be the creation in 2012 of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services. More than 100 States are parties to the Platform, whose purpose is to produce high-quality, peer-reviewed reports in response to requests by Governments. Its first report was an assessment of different scenarios and models of biodiversity and ecosystem services and its second an examination of pollination and pollinators around the world. The Platform's ongoing work programme includes four regional assessments, one each for Africa, the Americas, Asia and the Pacific, and Europe and Central Asia.[52]

31. There are also many failures to meet procedural obligations in relation to biodiversity. For example, many States need to provide more effective remedies to those harmed by the loss and degradation of ecosystems. Perhaps the most egregious problem, however, is the continuing failure to protect environmental human rights defenders, which has been recently described in detail by the Special Rapporteur on the situation of human rights defenders (A/71/281). Often the links between environmental defence and the enjoyment of human rights are clear, as when a community objects to a mine that would pollute its drinking water. But even people who protect components of ecosystems whose benefits to humans may be less obvious, such as endangered species (see, e.g., A/HRC/25/53/Add.1, para. 54), are still defending the biodiversity on which we all depend. They are also environmental human rights defenders, and they deserve our protection.

32. Unfortunately, like other defenders, they often fail to receive it. In 2015 alone, there were 185 confirmed killings of environmental and land defenders around the world.[53] Countless others are harassed and subjected to violence. As pressures to exploit natural resources grow, those who oppose unsustainable exploitation are increasingly under attack. Sometimes, government actors themselves commit or are complicit in the persecution. Even when they are not directly involved, Governments often fail to respond to threats, investigate violations and arrest those responsible, thereby creating a culture of impunity that encourages further attacks. Moreover, States have adopted laws that criminalize peaceful protests and opposition, restrict or prohibit the operations of civil society

[49] See, e.g., the Convention on Biological Diversity, art. 14 (environmental assessment, public participation); the United Nations Convention to Combat Desertification in those Countries Experiencing Serious Drought and/or Desertification, particularly in Africa, art. 3 (public participation) and the Convention Concerning the Protection of the World Cultural and Natural Heritage, art. 27 (public information).

[50] All of the responses to the questionnaire are available at www.ohchr.org/EN/Issues/Environment/SREnvironment/Pages/SubmissionsBiodiversity.aspx.

[51] The assessments are available at www.cbd.int/gbo/default.shtml.

[52] Information about the Platform and its work programme is available at www.ipbes.net.

[53] Global Witness, *On Dangerous Ground* (2016). Available at www.globalwitness.org/en/reports/dangerous-ground.

organizations and enable civil suits that seek to intimidate and silence environmental defenders.[54]

B. Substantive obligations

33. States have obligations to adopt legal and institutional frameworks that effectively protect against environmental harm that interferes with the enjoyment of human rights. As section II describes, the loss of ecosystem services and biodiversity threatens a broad spectrum of rights, including the rights to life, health, food, water, culture and non-discrimination. States therefore have a general obligation to safeguard biodiversity in order to protect those rights from infringement. That obligation includes a duty to protect against environmental harm from private actors, and businesses have a responsibility to respect the rights relating to biodiversity as well (see A/HRC/25/53, paras. 58-61).

34. States have discretion to strike a balance between environmental protection and other legitimate societal goals. But the balance must be reasonable, and it should never result in unjustified, foreseeable infringements of human rights. In the context of environmental harm generally, human rights bodies have identified factors that help to clarify whether a reasonable balance has been struck, which include whether the measure in question is the result of a process that complied with the procedural obligations described in the previous section, whether it is non-retrogressive, whether it is non-discriminatory and whether it accords with international and domestic standards (see A/HRC/25/53, paras. 53-56). Finally, States should fully implement their laws protecting human rights related to the environment.

35. The specific contours of substantive obligations may vary by situation. In addition to a general duty to protect biodiversity in order to support the full enjoyment of the range of human rights that depend upon it and the ecosystem services it underpins, States may also have more specific duties to protect places or components of biodiversity that are especially necessary for the enjoyment of rights of the members of particular communities, including the vulnerable communities discussed in the next section.

36. States should also cooperate with one another to protect biodiversity and ecosystem services. As the Special Rapporteur has previously explained (see A/HRC/31/52, paras. 42-48), international cooperation normally plays only a supporting role in the protection of human rights, but some types of environmental harm to human rights may trigger the duty of international cooperation, which has support in the general practice of States and, more specifically, in the Charter of the United Nations (arts. 55-56) and the International Covenant on Economic, Social and Cultural Rights (art. 2). The effective protection of biodiversity, like the effective mitigation of climate change, is possible only with international cooperation, as States have often recognized. Many of the components of biodiversity, the threats to biodiversity and the benefits biodiversity provides have transboundary or global dimensions.

37. For over a century, States have entered into treaties to protect components of biodiversity that straddle or migrate across borders, such as transboundary water bodies and migratory animals.[55] In more recent decades, States have increasingly realized the many

[54] See the report by the Special Rapporteur entitled "Environmental human rights defenders: a global crisis", at www.universal-rights.org.

[55] The many examples include the Convention on the Conservation of Migratory Species of Wild Animals, the Agreement for the Implementation of the Provisions of the United Nations Convention on the Law of the Sea of 10 December 1982 relating to the Conservation and Management of

threats to biodiversity that have transboundary aspects. The direct drivers of biodiversity loss include the destruction and degradation of natural habitat, the overexploitation of valuable plants and animals, pollution, invasive alien species and climate change. Some of these drivers, including climate change and transboundary pollution, are inherently beyond the control of any one State. Even habitat loss and overexploitation of local resources often have international dimensions. Poaching plants and animals in developing countries, for example, is largely driven by demand in foreign markets. To combat such international trafficking, States adopted the Convention on International Trade in Endangered Species of Wild Fauna and Flora, but a multibillion dollar illegal trade in wildlife continues. Well-known examples include killing elephants for ivory and rhinoceroses for their horns, capturing rare parrots and turtles to become pets and harvesting endangered rosewood trees to make furniture.

38. Many of the benefits of biodiversity also have international dimensions. Food and medicine derived from natural resources in one part of the world can benefit people everywhere. Conversely, diseases that spread more quickly because of reduced biodiversity may affect people far from where they first emerged. Other benefits of biodiversity may be less concrete, but nonetheless widely shared. For example, many people find the species with which we share this planet fascinating and inherently valuable, and they feel a sense of loss when they learn of the extinction of species such as the Bramble Cay melomys (*Melomys rubicola*), the only mammal endemic to the Great Barrier Reef. Its extinction in 2016 was the first attributed to climate change. The small island where the melomys lived was inundated multiple times by rising sea levels, killing the animals and destroying their habitat.[56]

39. The recognition that we all benefit from the interwoven planetary web of biodiversity, and that we are all harmed by its degradation, has led to the adoption of many conservation agreements.[57] The one with the widest scope is the Convention on Biological Diversity, whose preamble affirms that the conservation of biological diversity is a common concern of humankind and whose objectives are "the conservation of biological diversity, the sustainable use of its components and the fair and equitable sharing of the benefits arising out of the utilization of genetic resources". Through the Convention and other agreements, States have identified the steps necessary to conserve and sustainably use biodiversity. If implemented, these measures would protect biodiversity and satisfy the joint obligation of States to cooperate to protect the human rights dependent upon biodiversity.

40. The enormous problem is that the agreements have often not been effectively implemented and their goals have not been met. As a result, biodiversity continues to decrease at unsustainable rates. There are many examples of failures to protect biodiversity, but the present report focuses on efforts made pursuant to the Convention on Biological Diversity. To meet its objectives, the Convention requires each party to take specific measures, "as far as possible and as appropriate", including developing national plans for the conservation and sustainable use of biodiversity (art. 6), identifying and monitoring

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Straddling and Highly Migratory Fish Stocks and the International Convention for the Regulation of Whaling.

[56] Michael Slezak, "Revealed: first mammal species wiped out by human-induced climate change", *The Guardian* (14 June 2016).

[57] See, e.g., the Convention on Wetlands of International Importance Especially as Waterfowl Habitat, the Convention concerning the Protection of the World Cultural and Natural Heritage, the United Nations Convention to Combat Desertification in those Countries Experiencing Serious Drought and/or Desertification, particularly in Africa and the International Treaty on Plant Genetic Resources for Food and Agriculture. See, generally, United Nations Environment Programme, *Understanding Synergies and Mainstreaming among the Biodiversity-related Conventions* (2016).

important components of biodiversity and activities that have (or are likely to have) significant adverse effects (art. 7) and pursuing measures for in-situ and ex-situ conservation (arts. 8 and 9). In addition, the Convention recognizes that the authority to determine access to genetic resources rests with each national Government and sets out provisions for agreement to such access (art. 15). The broad scope of the Convention is matched by its near-universal membership: it has 196 parties, including virtually every country in the world except the United States of America, which has signed but not ratified it.

41. In 2002, the Conference of the Parties to the Convention adopted a strategic plan "to effectively halt the loss of biodiversity".[78] The parties clearly described the stakes, emphasizing that biodiversity "is the foundation upon which human civilization has been built". They stated that "the rate of biodiversity loss is increasing at an unprecedented rate, threatening the very existence of life as it is currently understood", undermining sustainable development and constituting "one of the great challenges of the modern era".[79] To meet this existential threat, the parties adopted a rather modest goal: not to halt, much less reverse, the loss of biodiversity, but only to significantly reduce the rate of loss by 2010. To that end, the strategic plan included 11 goals and 21 subsidiary targets. For example, goal 2 was to "promote the conservation of species diversity" and target 2.1 was to "restore, maintain, or reduce the decline of populations of species of selected taxonomic groups".[80]

42. In 2005, the Millennium Ecosystem Assessment explained not just how necessary ecosystem services are to human well-being, as described in section II of the present report, but also how rapidly humans were destroying biodiversity. Of the 24 ecosystem services it reviewed, 15 were being degraded or used unsustainably, including fresh water, capture fisheries, protection against erosion and the purification of air and water. The Assessment reported that humans had increased the rate of extinction of species as much as 1,000 times over background rates, that 10-30 per cent of mammal, bird and amphibian species were threatened with extinction and that at least one quarter of important commercial fish stocks were being overharvested. It also warned that the harm to ecosystems was increasing the likelihood of abrupt and potentially irreversible changes, such as the creation of "dead zones" in coastal waters and the collapse of fisheries. It underscored that the harmful effects of ecosystem degradation "are being borne disproportionately by the poor, are contributing to growing inequities and disparities across groups of people, and are sometimes the principal factor causing poverty and social conflict."[81]

43. In 2010, the secretariat of the Convention on Biological Diversity published *Global Biodiversity Outlook 3*, which showed that States had utterly failed to meet even the modest aim of significantly reducing the rate of biodiversity loss. None of the 21 subtargets had been achieved and the report identified significant progress towards only four.[82] The secretariat found multiple indications of the continued loss of biodiversity: genetic diversity in crops and livestock continued to decrease; assessed species were on average moving closer to extinction; and natural habitats, especially wetlands, salt marshes and coral reefs, continued to decline in extent and integrity. Although there was progress in some regions in slowing the rate of loss of tropical forests and mangroves, on the whole the degradation and fragmentation of ecosystems continued to lead to the loss of ecosystem services.[83]

[78] Decision VI/26, annex, para. 2.

[79] Ibid., paras. 3-4.

[80] Decision VII/30, annex II.

[81] *Ecosystems and Human Well-being: Synthesis*, pp. 1-6.

[82] Secretariat of the Convention on Biological Diversity, *Global Biodiversity Outlook 3* (Montreal, 2010), pp. 18-19.

[83] Ibid., p. 9.

44. The secretariat noted that over 170 States had developed national biodiversity strategies and action plans, and reported that "in many countries, the preparation of strategies has stimulated the development of additional laws and programmes, and spurred action on a broad range of issues, including: the eradication or control of alien invasive species; using biodiversity sustainably; the protection of traditional knowledge and rules to ensure local communities share benefits from bio-prospecting which might result in patents or sales of new drugs, foods or cosmetics; the safe use of biotechnology; and maintaining the diversity of plants and animals used in agriculture".[64] However, it stated that relatively few parties had fully integrated the 2010 biodiversity targets into their national strategies. Moreover, few countries were using national biodiversity strategies and action plans as effective tools for integrating biodiversity into broader policies and planning processes.[65]

45. In response to the failure to meet the objectives of the 2002 strategic plan, the parties to the Convention adopted another strategic plan for the decade 2011-2020. With admirable frankness, the parties recognized that "there has been insufficient integration of biodiversity into broader policies, strategies, programmes and actions, and therefore the underlying drivers of biodiversity loss have not been significantly reduced".[66] They highlighted the risk of "drastic consequences to human societies" if current trends continued, stated that, unless urgent action was taken, "a wide range of services derived from ecosystems, underpinned by biodiversity, could rapidly be lost" and concluded that while the poor would feel the effects most severely, no one would be immune.[67]

46. To avoid this outcome, the current strategic plan sets out 20 targets, called the Aichi Biodiversity Targets, each of which includes multiple components. For example, target 5 is to at least halve the rate of loss of all natural habitats, including forests, by 2020 and to significantly reduce degradation and fragmentation. Target 11 calls for at least 17 per cent of terrestrial areas and 10 per cent of coastal and marine areas to be included in systems of protected areas, and target 12 is for the extinction of known threatened species to be prevented and their conservation status improved.

47. In 2014, the secretariat of the Convention reported on progress towards the targets. It stated that the international community was on pace to exceed only one of the 56 components of the targets and to meet only four, including the goal of declaring 17 per cent of terrestrial areas as protected areas. With respect to 33 of the components, some progress had been made but not enough to be on track to meet the target by the deadline. This category includes the goal of halving the rate of loss of forests and protecting at least 10 per cent of coastal and marine areas. For another 15 components, including those in target 12 on threatened species, there was either no significant progress (10) or the situation actually became worse (five).[68] The secretariat drew the obvious conclusion that the status of biodiversity would continue to decline and the Aichi Biodiversity Targets would not be met unless additional actions were taken.[69]

48. States are not meeting the standards they themselves have set for the protection of biodiversity. In many developing countries, much of this failure may be due to lack of the necessary capacity, and in these cases developed countries and international institutions

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[64] Ibid., p. 20.
[65] Ibid.
[66] Decision X/2, annex, para. 5.
[67] Ibid., para. 8.
[68] Secretariat of the Convention on Biological Diversity, *Global Biodiversity Outlook 4* (Montreal, 2014), pp. 17-22. See also World Wildlife Fund, *Living Planet Report 2016: Risk and Resilience in a New Era* (Gland, Switzerland, 2016), p. 12 ("On average, monitored [vertebrate] species population abundance declined by 58 per cent between 1970 and 2012.").
[69] Secretariat of the Convention on Biological Diversity, *Global Biodiversity Outlook 4*, p. 10.

should increase their support for capacity-building. However, in December 2016, the Conference of the Parties to the Convention noted that "only a minority of parties have established targets [in their national biodiversity strategies and action plans] with a level of ambition and scope commensurate with the Aichi Biodiversity Targets".[70] Unless States effectively address the drivers of biodiversity loss, including by mainstreaming obligations of conservation and sustainable use into broader development policies and measures, the continuing destruction and degradation of biodiversity will undermine the enjoyment of a wide range of human rights.

C. Obligations in relation to people in vulnerable situations

49. Although the global failure to protect biodiversity ultimately affects everyone, it is already having catastrophic consequences for indigenous peoples and others who depend directly on ecosystems for their food, water, fuel and culture. In all parts of the world, from the Gualcarque River in Honduras to the Kaya forests in Kenya, from Koh Kong in Cambodia to Standing Rock in the United States, indigenous peoples and local communities are working to protect the ecosystems on which they rely from unsustainable development. While they achieve some successes, too often overexploitation of natural resources pollutes their rivers and aquifers, cuts down their forests, destroys their sacred places and displaces them from their homes. Peaceful opposition is often met with harassment, violence and even death. States have obligations not only to protect environmental defenders, but also to protect the ecosystems on which the human rights of so many people directly depend.

50. In general, States have heightened duties with respect to those who are particularly vulnerable to environmental harm (see A/HRC/25/53, paras. 69-78). As section II explains, indigenous peoples and others who closely depend on nature for their material and cultural needs are especially vulnerable to actions that adversely affect ecosystems. States should ensure that such actions, whether carried out by Governments or private actors, do not prevent the enjoyment of their human rights, including their rights to life, health, food, water, housing and culture.

51. The rights of indigenous peoples are recognized in international instruments, including the United Nations Declaration on the Rights of Indigenous Peoples and the International Labour Organization (ILO) Indigenous and Tribal Peoples Convention, 1989 (No. 169), and they have been elaborated by human rights authorities. There is no need to review the corresponding duties in detail here, beyond reiterating that, among other obligations, States have duties to recognize the rights of indigenous peoples in the territory that they have traditionally occupied and the natural resources on which they rely, to ensure that indigenous peoples receive reasonable benefits from authorized activities affecting such territory or resources, and to provide access to effective remedies, including compensation, for harm caused by these activities. States must facilitate the participation of indigenous peoples in decisions that concern them, and development or extractive activities should not take place within the territories of indigenous peoples without their free, prior and informed consent, subject only to narrow exceptions (see A/HRC/24/41, para. 27).

52. Many people who do not self-identify as indigenous also have close relationships to the territory that they have traditionally occupied and depend directly on nature for their material needs and cultural life.[71] Although there is no instrument equivalent to the United

[70] Decision XIII/1, para. 6.

[71] The line between indigenous peoples and non-indigenous communities is not always clear, and the United Nations Declaration on the Rights of Indigenous Peoples does not attempt to define it. A key

Nations Declaration on the Rights of Indigenous Peoples for non-indigenous communities that have similarly close relationships with their ancestral territories. States nevertheless have heightened obligations to protect people in these situations from the adverse effects of exploitation of natural resources. These protections arise from multiple sources, including the general obligation of States to respect and protect the human rights of members of these communities, taking into account that their close relationship with nature makes their ability to enjoy these rights especially vulnerable to environmentally harmful actions. Among other obligations, States therefore have heightened duties to ensure that they are able to enjoy the rights to information, participation, freedom of expression and association, and effective remedies in relation to actions that may adversely affect their relationship with the ecosystems on which they depend, as well as substantive rights to protection of the ecosystems themselves.

53. Non-indigenous as well as indigenous persons may also be owed heightened obligations because of their status as members of minorities. Article 27 of the International Covenant on Civil and Political Rights provides that "persons belonging to [ethnic, religious or linguistic] minorities shall not be denied the right, in community with the other members of their group, to enjoy their own culture, to profess and practise their own religion, or to use their own language". The Human Rights Committee has stated that "culture manifests itself in many forms, including a particular way of life associated with the use of land resources, especially in the case of indigenous peoples", and that the enjoyment of rights to traditional activities, such as hunting and fishing, may require "positive legal measures of protection and measures to ensure the effective participation of members of minority communities in decisions which affect them."[72]

54. The Human Rights Committee has made clear that States may not promote their economic development at the expense of the rights protected by article 27 of the Covenant. Whether measures that substantially interfere with the culturally significant economic activities of a minority community are acceptable depends on whether the members of the community were able to participate in the decision-making process that resulted in the measures and whether they will continue to benefit from their traditional economy. The Committee has stated that "participation in the decision-making process must be effective, which requires not mere consultation but the free, prior and informed consent of the members of the community. In addition, the measures must respect the principle of proportionality so as not to endanger the very survival of the community and its members".[73]

55. Protections for non-indigenous as well as indigenous people may also arise from the principle of non-discrimination, which is recognized in the Universal Declaration of Human Rights (art. 2) and throughout human rights law. States are required to ensure that measures, including measures that may appear non-discriminatory on their face, do not have disproportionate impacts on the enjoyment of human rights on prohibited grounds, including race and ethnicity.[74] Because measures that adversely affect ecosystems may well have disproportionately severe effects on the enjoyment of human rights of members of marginalized ethnic groups who rely directly on the ecosystems, States have heightened

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consideration is whether the people themselves self-identify as indigenous. See the ILO Indigenous and Tribal Peoples Convention, 1989 (No. 169), art. 1.

[72] General comment No. 23 (1994) on the rights of minorities, para. 7.

[73] See communication No. 1457/2006, *Poma Poma v. Peru*, Views adopted on 27 March 2009, paras. 7.3-7.6.

[74] Committee on Economic, Social and Cultural Rights, general comment No. 20 (2009) on non-discrimination in economic, social and cultural rights, para. 10.

obligations to ensure that such laws and policies satisfy the requirements of legitimacy, necessity and proportionality.

56. In particular, human rights bodies have emphasized that States should protect the special relationship of people with the territory that they have traditionally occupied when their subsistence and culture is closely linked to that territory. For example, the Inter-American Court of Human Rights has held that States have heightened obligations to protect the right to property, as recognized in the American Convention on Human Rights (art. 21), of Afrodescendant tribal communities. Because such communities have their own customs and a special relationship with their ancestral territories, the Court held that, like indigenous peoples, they "require special measures that guarantee the full exercise of their rights, particularly with regards to their enjoyment of property rights, in order to safeguard their physical and cultural survival".[75] These special measures include an obligation on the State to recognize and protect their communal property right in the territory and the natural resources they have traditionally used. Restrictions on this right are acceptable only if they are previously established by law, necessary, proportional and have "the aim of achieving a legitimate objective in a democratic society".[76] In addition, restrictions may not deny a community's survival as a tribal or indigenous people, which requires the State to conduct assessment, consultation and benefit-sharing and, with respect to projects that would have a major impact, to obtain their free, prior and informed consent.[77] Similarly, the Committee on the Elimination of Racial Discrimination has urged the review of forestry laws "to ensure respect for ethnic groups' way of living, livelihood and culture, and their right to free and prior informed consent in decisions affecting them, while protecting the environment" (see CERD/C/THA/CO/1-3, para. 16).[78]

57. Human rights bodies continue to clarify the duties owed to non-indigenous as well as indigenous people whose way of life depends directly on ecosystems.[79] While much more work remains to be done to define these obligations and the obligations owed to others in vulnerable situations (who may include women, children, the elderly, the disabled and the extremely poor) in relation to environmental harm in general and the loss of ecosystem services in particular, the obligations are already clear enough that States and others should take them into account.

58. These obligations apply not only to measures aimed at exploitation of resources, but also to those aimed at conservation. The Special Rapporteur on the rights of indigenous peoples has identified many examples of forced displacement from protected areas, whose consequences have included "marginalization, poverty, loss of livelihoods, food insecurity, extrajudicial killings, and disrupted links with spiritual sites and denial of access to justice and remedy" (see A/71/229, para. 51). Non-indigenous communities, including Afrodescendants, have also experienced adverse effects as a result of conservation measures (see, e.g., A/HRC/25/53/Add.1, para. 63). While States should do more to protect

[75] Inter-American Court of Human Rights, judgment of 28 November 2007, *Saramaka People v. Suriname*, para. 85. Among other sources, the Court drew on the ILO Indigenous and Tribal Peoples Convention, 1989 (No. 169), whose scope includes tribal as well as indigenous peoples.

[76] Ibid., para. 127. See also paras. 96, 115 and 121.

[77] Ibid., paras. 128-140. See, generally, Inter-American Commission on Human Rights, *Indigenous peoples, Afro-descendent Communities, and Natural Resources: Human Rights Protection in the Context of Extraction, Exploitation, and Development Activities* (2015).

[78] See also general recommendation No. 34 (2011) on racial discrimination against people of African descent, para. 4.

[79] The Human Rights Council open-ended intergovernmental working group on a United Nations declaration on the rights of peasants and other people working in rural areas may provide another opportunity for such clarification.

biodiversity, they must act in accordance with the human rights of those who have long-standing, close relationships with their ancestral territories.[80]

59. Protecting the rights of those who live closest to nature is not just required by human rights law; it is also often the best or only way to ensure the protection of biodiversity. The knowledge and practices of the people who live in biodiversity-rich ecosystems are vital to the conservation and sustainable use of those ecosystems. It has been estimated that territories and areas conserved by indigenous peoples and local communities (called, for historical reasons, ICCAs, for indigenous and community conserved areas) cover at least as much land surface as protected areas administered by Governments.[81] Protecting the human rights of indigenous peoples and local communities has been shown to result in improved protection for ecosystems and biodiversity.[82] Conversely, trying to conserve biodiversity by excluding them from a protected area typically results in failure.[83] In short, respect for human rights should be seen as complementary, rather than contradictory, to environmental protection.[84]

60. International and national institutions have recognized the importance of respecting the rights of indigenous peoples and local communities who closely depend on natural resources and of supporting their efforts to conserve and sustainably use biodiversity.[85] In particular, article 8 (j) of the Convention on Biological Diversity requires each party, "subject to its national legislation", to "respect, preserve and maintain knowledge, innovations and practices of indigenous and local communities embodying traditional lifestyles relevant for the conservation and sustainable use of biological diversity", to promote their wider application and to encourage the equitable sharing of benefits. Article 10 (c) urges parties to protect and encourage the customary use of biological resources in accordance with traditional cultural practices that are compatible with conservation or sustainable use requirements. The parties to the Convention have built on these provisions, including through the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from Their Utilization to the Convention, which, among other things, provides for "the prior informed consent or approval and involvement of indigenous and local communities" in relation to access to traditional knowledge associated with genetic resources (art. 7), and requires that the parties take steps to ensure

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[80] See African Commission on Human and Peoples' Rights, *Endorois Welfare Council v. Kenya*, No. 276/2003 (2010); Inter-American Court of Human Rights, *Kaliña and Lokono Peoples v. Suriname*, judgment of 25 November 2015.

[81] Ashish Kothari and others, *Recognising and Supporting Territories and Areas Conserved by Indigenous Peoples and Local Communities* (secretariat of the Convention on Biological Diversity, Montreal, 2012), p. 30.

[82] See, e.g., World Resources Institute, *Climate Benefits, Tenure Costs: The Economic Case for Securing Indigenous Land Rights in the Amazon* (2016).

[83] See Marc Galvin and Tobias Haller, eds., *People, Protected Areas and Global Change: Participatory Conservation in Latin America, Africa, Asia and Europe* (2008).

[84] See *Kaliña and Lokono Peoples v. Suriname*, para. 173.

[85] See, e.g., the revised World Bank Environmental and Social Framework, whose safeguards, including the requirement of free, prior and informed consent, cover "sub-Saharan African historically underserved traditional local communities" as well as indigenous peoples; the statement in September 2016 by the Office of the Prosecutor of the International Criminal Court that it will give particular consideration to prosecuting Rome Statute crimes that are committed by, or that result in, "the destruction of the environment, the illegal exploitation of natural resources or the illegal dispossession of land"; the Convention for the Safeguarding of Intangible Cultural Heritage; the Food and Agriculture Organization's Voluntary Guidelines on the Responsible Governance of Tenure of Land, Fisheries and Forests in the Context of National Food Security; and the Indian Forest Rights Act of 2006.

that the benefits arising from utilization of genetic resources and traditional knowledge are shared in a fair and equitable way with the communities concerned (art. 5).

61. The Conference of the Parties has taken a number of other decisions that recognize and support the role of indigenous peoples and local communities in the protection of biodiversity,[86] including by encouraging the parties to the Convention to support their management of ICCAs and protected areas.[87] The strategic plan for 2011-2020 (see paras. 45-46 above) includes the goals of restoring and safeguarding ecosystems that provide essential services, taking into account the needs of indigenous and local communities as well as women, the poor and the vulnerable (target 14) and respecting and fully integrating the traditional knowledge and practices of indigenous and local communities in the implementation of the Convention (target 18). Some States have reported significant progress in supporting the traditional and participatory management of natural resources.[88]

62. Conservation organizations have also committed to respect and support the rights of indigenous peoples and local communities. In Durban in 2003, the World Parks Congress of the International Union for Conservation of Nature (IUCN), an umbrella organization with more than 1,000 members, including States, government agencies and civil society organizations, adopted a new paradigm for protected areas. Replacing exclusionary "fortress" models of conservation, the Durban Accord announced, among other things, that protected areas should be established and managed in full compliance with the rights of indigenous peoples and local communities (see A/71/229, paras. 39-41). Subsequent IUCN World Parks and World Conservation Congresses have continued to endorse and develop this approach, including by expressing support for ICCAs.

63. Despite these commitments, however, substantial gaps in implementation remain. In December 2016, the Conference of the Parties to the Convention on Biological Diversity noted "the limited progress made towards Aichi Biodiversity Targets 18 and 14 at the national level and in mainstreaming Article 8 (j) and related provisions into various areas of work under the Convention, including capacity development and the participation of indigenous peoples and local communities in the work of the Convention", and also noted with concern that only a limited number of national biodiversity strategies and action plans even refer to indigenous peoples and local communities or customary sustainable use.[89] Similarly, the Special Rapporteur on the rights of indigenous peoples has identified shortcomings in implementation of the Durban commitments, including the failure of IUCN and most other conservation organizations to institute effective grievance mechanisms (see A/71/229, para. 49). On a more positive note, in 2016 the World Conservation Congress amended the IUCN statute to make it easier for indigenous peoples' organizations to join IUCN, which should facilitate closer ties with conservation organizations.

64. Other good practices in support of indigenous peoples and local communities also deserve to be highlighted and replicated. A shining example is the Small Grants Programme of the Global Environment Facility, implemented by the United Nations Development Programme (UNDP), which over the past 25 years has funded 20,000 projects in over 125 countries through grants averaging about $25,000 each. Nearly half of the grants have supported indigenous and local efforts aimed at the conservation and sustainable use of biodiversity. On his visit to Madagascar, the Special Rapporteur observed how one of these

[86] See, e.g., decision XIII/18, which contains the Mo'otz Kuxtal voluntary guidelines on measures to ensure the free, prior and informed consent, or approval and involvement, of indigenous peoples and local communities; and decision VII/16, which contains the Akwé: Kon voluntary guidelines for the conduct of social and environmental impact assessments.

[87] See, e.g., decision XII/12 and decision VII/28.

[88] Secretariat of the Convention on Biological Diversity, *Global Biodiversity Outlook 4*, pp. 85 and 115.

[89] Decision XIII/1, paras. 8-9.

grants has directly assisted a local community to conserve endangered wildlife. Another excellent practice is the UNDP Equator Initiative, which works to support local solutions for sustainable development by building local capacity, sharing good practices and recognizing successes through its annual Equator Prizes.[90]

IV. Conclusions and recommendations

65. **Biodiversity is necessary for ecosystem services that support the full enjoyment of a wide range of human rights, including the rights to life, health, food, water and culture. In order to protect human rights, States have a general obligation to protect ecosystems and biodiversity.**

66. **Biodiversity around the world is rapidly being degraded and destroyed, with grave and far-reaching implications for human well-being. A human rights perspective:**

(a) **Helps to clarify that the loss of biodiversity also undermines the full enjoyment of human rights;**

(b) **Heightens the urgent need to protect biodiversity;**

(c) **Helps to promote policy coherence and legitimacy in the conservation and sustainable use of biodiversity.**

67. **Procedurally, States should:**

(a) **Assess the social and environmental impacts of all proposed projects and policies that may affect biodiversity;**

(b) **Provide public information about biodiversity, including environmental and social assessments of proposals, and ensure that the relevant information is provided to those affected in a language that they understand;**

(c) **Provide for and facilitate public participation in biodiversity-related decisions;**

(d) **Provide access to effective remedies for the loss and degradation of biodiversity.**

68. **States should recognize that defenders of biodiversity are also human rights defenders, and implement the recommendations of the Special Rapporteur on the situation of human rights defenders on providing a safe and enabling environment for human rights defenders in general (see, e.g., A/HRC/25/55) and for environmental human rights defenders in particular (see A/71/281).**

69. **Substantively, every State should establish legal and institutional frameworks for the protection of biodiversity that:**

(a) **Regulate harm to biodiversity from private actors as well as government agencies;**

(b) **Adopt and implement standards that accord with international standards, are non-retrogressive and non-discriminatory, and respect and protect the rights of those who are particularly vulnerable to the loss of biodiversity and ecosystem services.**

[90] See https://sgp.undp.org and www.equatorinitiative.org.

70. States have adopted agreements and initiatives to protect biodiversity, including a comprehensive strategic plan for 2011-2020 under the auspices of the Convention on Biological Diversity. However, States are not on track to meet the targets in the strategic plan. States should redouble their efforts to achieve the targets, including by ensuring that their national biodiversity strategies and action plans reflect the necessary scope and ambition. Donor States and organizations should increase support to ensure that all States have the capacity to meet the targets, and safeguards should ensure that biodiversity-related projects do not violate human rights.

71. States must do more to respect and protect the rights of those who are most vulnerable to the degradation and loss of biodiversity. States should recognize that members of non-indigenous minority communities that have separate cultural traditions and close material and cultural ties to their ancestral territories have rights that are similar (but not simply identical) to those of indigenous peoples, and States should respect and protect their rights as well as those of indigenous peoples. States should support indigenous and local efforts to protect biodiversity, including through ICCAs, recognizing that the traditional knowledge and commitment of indigenous peoples and local communities often make them uniquely qualified to do so.

72. Businesses should respect human rights in their biodiversity-related actions, including by:

(a) Complying with the Guiding Principles on Business and Human Rights in all actions that may affect biodiversity and ecosystems;

(b) Following the Akwé: Kon voluntary guidelines;

(c) Implementing the recommendations of the Special Rapporteur on the rights of indigenous peoples with respect to extractive activities (A/HRC/24/41);

(d) Not seeking or exploiting concessions in protected areas or ICCAs.

73. Conservation organizations should increase their efforts to fulfil their commitments to a rights-based approach to conservation, including by implementing the recommendations of the Special Rapporteur on the rights of indigenous peoples (see A/71/229, paras. 77-82), and by:

(a) Sharing good practices;

(b) Building more active partnerships with human rights organizations;

(c) Conducting human rights impact assessments;

(d) Establishing effective grievance mechanisms.